U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
PB-284 516

Rye Patch Reservoir Pershing County, Nevada

U.S. National Eutrophication Survey, Las Vegas, Nev

Prepared for

Environmental Monitoring and Support Lab, Las Vegas, Nev

Sep 77

PB 284 516

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

and

ENVIRONMENTAL MONITORING & SUPPORT LABORATORY - LAS VEGAS, NEVADA

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SPRINGFIELD, VA. 22161

G.P.O. 699-440

TECHNICAL REPORT DATA
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1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO. PB-284 516
4. TITLE AND SUBTITLE: Report on Rye Patch Reservoir, Pershing County, Nevada		5. REPORT DATE: Prepared September 1977 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S): Anonymous (National Eutrophication Survey Staff)		8. PERFORMING ORGANIZATION REPORT NO.: Working Paper #809
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Environmental Monitoring and Support Laboratory P.O. Box 15027 Las Vegas, Nevada 89114		10. PROGRAM ELEMENT NO.: 1BA029 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS: Office of Research and Development U.S. Environmental Protection Agency 401 M. Street, S. W. Washington, DC 20460		13. TYPE OF REPORT AND PERIOD COVERED: Final -1977 14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES
Prepared in cooperation with the U.S. Environmental Protection Agency, Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon 97330

16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
eutrophication lakes nutrients phosphorus nitrogen loading	National Eutrophication Survey Lake Survey	05B 05C

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES
Release Unlimited	Unclassified	49
	20. SECURITY CLASS (This page)	22. PRICE A03-A01

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

REPORT
ON
RYE PATCH RESERVOIR
PERSHING COUNTY
NEVADA
EPA REGION IX
WORKING PAPER No. 809

WITH THE COOPERATION OF THE
NEVADA ENVIRONMENTAL PROTECTION SERVICE
AND THE
NEVADA NATIONAL GUARD
SEPTEMBER, 1977

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REPORT ON RYE PATCH RESERVOIR

PERSHING COUNTY, NEVADA

EPA REGION IX

by

National Eutrophication Survey

Water and Land Quality Branch
Monitoring Operations Division
Environmental Monitoring & Support Laboratory
Las Vegas, Nevada

and

Special Studies Branch
Corvallis Environmental Research Laboratory
Corvallis, Oregon

Working Paper No. 809

OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY

September 1977

1b

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the States.

ACKNOWLEDGMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the Nevada State Environmental Protection Service for professional involvement, to the Nevada National Guard for conducting the tributary sampling phase of the Survey, and to those Nevada wastewater treatment plant operators who provided effluent samples and flow data.

The staff of the Department of Conservation and Natural Resources, Division of Environmental Protection, State Environmental Protection Service provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports and provided critiques most useful in the preparation of this Working Paper Series.

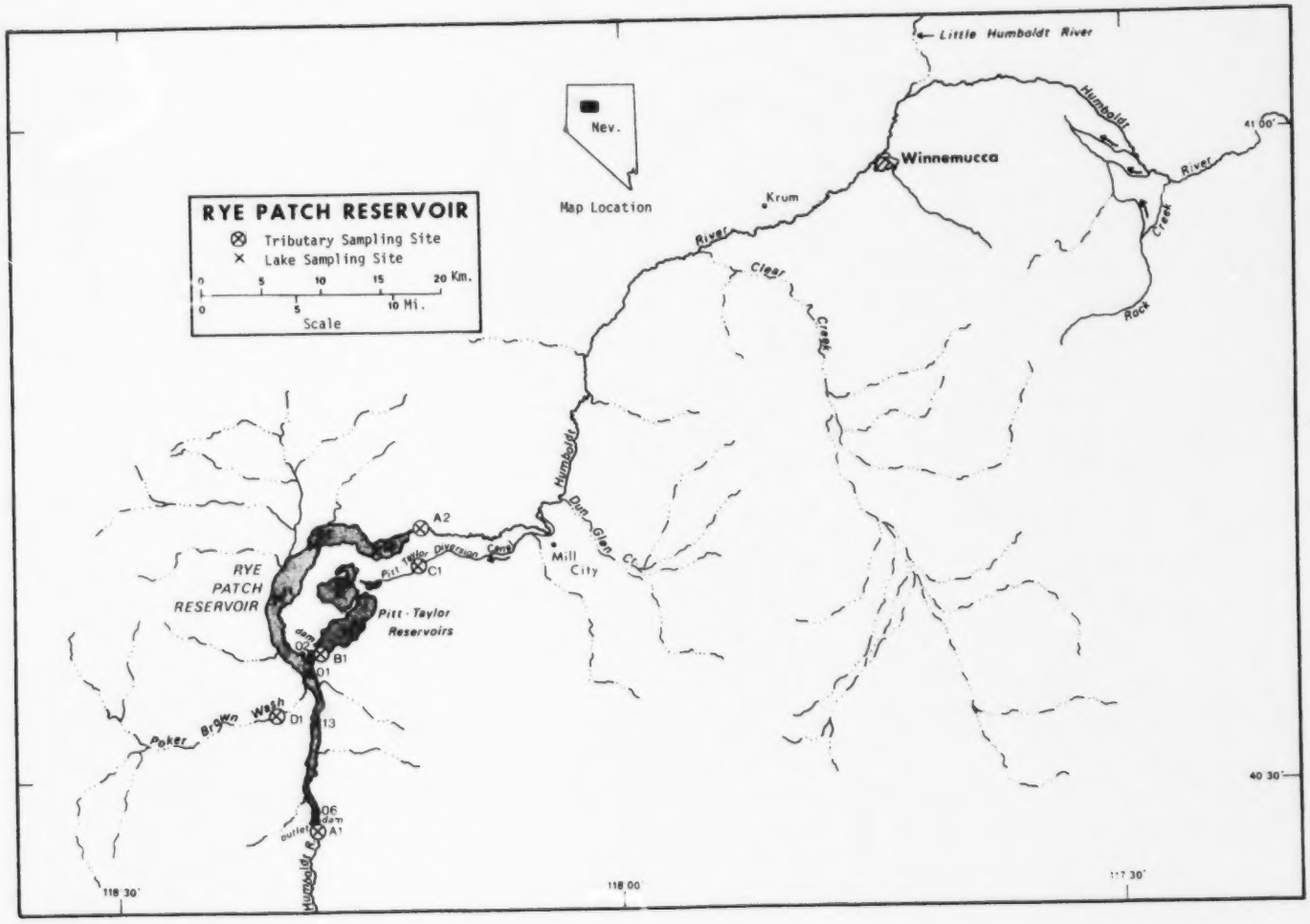
Major General Floyd L. Edsall, the Adjutant General of Nevada, and Project Officer Major Harold E. Roberts, who directed the volunteer efforts of the Nevada National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF NEVADA

LAKE NAME	COUNTY
Lake Mead	Clark (Mohave in Arizona)
Lahontan Reservoir	Lyon, Churchill
Rye Patch Reservoir	Pershing
Lake Tahoe	Washoe, Carson City, Douglas (Placer, El Dorado in CA)
Topaz Reservoir	Douglas (Mono in CA)
Upper Pahranagat Lake	Lincoln
Washoe Lake	Washoe
Wildhorse Reservoir	Elko
Wilson Reservoir	Elko
Walker Lake	Mineral


RYE PATCH RESERVOIR
Tributary Sampling Site
Lake Sampling Site
0 5 10 15 20 Km.
0 5 10 Mi.
Scale
Nev.
Map Location
Little Humboldt River
Winnemucca
Krum
Humboldt River
Clear Creek
Rock Creek
Humboldt River
Dun Glen Ck.
Mill City
Pitt Taylor Diversion Canal
A2
C1
RYE PATCH RESERVOIR
Pitt-Taylor Reservoirs
dam
02
B1
D1
Poker Brown Wash
D1
13
06
dam
outlet
A1
Humboldt R.
41 00'
40 30'
118 30'
118 00'
117 30'

REPORT ON RYE PATCH RESERVOIR, NEVADA

STORET NO. 3204

I. CONCLUSIONS

A. Trophic Condition:*

Survey data indicate that Rye Patch Reservoir is eutrophic, i.e., nutrient rich and highly productive. Whether such nutrient enrichment is to be considered beneficial or deleterious is determined by its actual or potential impact upon designated water uses of the lake.

Chlorophyll a values in the lake ranged from 1.5 µg/l in July to 20.6 µg/l in November with a mean of 4.9 µg/l. The potential for primary productivity as measured by algal assay control yields was high in June and in portions of the lake in November. Of the 10 Nevada lakes sampled in 1975, 5 had higher median total phosphorus values (0.094 mg/l), 8 had higher median inorganic nitrogen levels (0.050 mg/l) and 5 had higher median orthophosphorus values (0.039 mg/l) than Rye Patch Reservoir.

Survey limnologists did not report any algal blooms or macrophyte problems on their visits to the lake. However, it was noted that this lake was highly turbid on all sampling occasions and low Secchi disc visibility (range 0.2 - 1.5 m)

*See Appendix E.

suggests primary productivity in the lake may be light limited.

B. Rate-Limiting Nutrient:

Algal assay results indicate that Rye Patch Reservoir was limited by available nitrogen during the spring sampling (06/02/75) and by available phosphorus during the fall sampling (11/07/75). The reservoir data suggest primary limitation by nitrogen at all three sampling times.

C. Nutrient Controllability:

1. Point sources -

There were no known point sources directly impacting Rye Patch Reservoir during the sampling year. However, the Nevada Environmental Protection Services (1976) notes that effluent from individual sewage systems at Mill City, Imlay, and other areas may leach into the Humboldt River. Also, the Winnemucca, Wells, Elko and Carlin waste water treatment plants discharge to the river, but since they are substantially further upstream than 40 stream kilometers (25 miles) from the reservoir, their nutrient contributions are not included in the loading calculations (pages 12 - 13) for the lake.

The present phosphorus loading of 1.18 g $P/m^2/yr$ is three times that proposed by Vollenweider (1975) as a "eutrophic" loading. Vollenweider's model is probably not applicable to lakes in which epilimnetic light penetration is severely reduced by the presence of suspended materials in the surface

waters. Nevertheless, phosphorus levels in the lake are excessively high and it is expected that the trophic condition of Rye Patch Reservoir will continue to deteriorate if the present loading rate is maintained.

2. Nonpoint sources -

The Humboldt River contributed 92.4% of the total phosphorus load to Rye Patch Reservoir during the sampling year and Pitt-Taylor Diversion Canal contributed 4.8%. Nutrients in the river are primarily a result of livestock watering, irrigation return flows, mining, construction, and general erosion of the watershed (Nevada Environmental Protection Services, 1976). Some of this "nonpoint" phosphorus loading of the Humboldt River to Rye Patch Reservoir, however, can probably be attributed to the four upstream municipal facilities discharging into the river. Additional study is needed to determine what actual percentage of this "nonpoint" load can be attributed to these distant dischargers.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

Lake and drainage basin characteristics are itemized below. Lake morphometry data were provided by James B. Williams, Jr. (personal communication). Tributary flow data were provided by the Nevada District Office of the U.S. Geological Survey (USGS). Outlet drainage area includes the lake surface area. Tributaries A-2 and C-1 are canals, and, as such, have no drainage areas; nevertheless, the drainage area of the Humboldt River is recorded as that of tributary A-2. Tributary B-1 includes the drainage area of the Pitt-Taylor Reservoirs. Mean hydraulic retention time was obtained by dividing the lake volume by mean flow of the outlet. Precipitation values are estimated by methods as outlined in National Eutrophication Survey (NES) Working Paper No. 175. A table of metric/English conversions is included as Appendix A.

A. Lake Morphometry:

1. Surface area: 46.14 km^2.
2. Mean depth: 4.6 meters.
3. Maximum depth: 18.7 meters.
4. Volume: 210.926 x 10^6 m^3.
5. Mean hydraulic retention time: 421 days (1.2 yrs)

B. Tributaries and Outlet:
(See Appendix B for flow data)

1. Tributaries -

Name	Drainage area (km^2)	Mean Flow (m^3/sec)
A-2 Humboldt River	40,663.0	6.61
B-1 Pitt-Taylor Reservoir	142.4	0.06
C-1 Pitt-Taylor Diversion Canal	0.0	0.45
Minor tributaries and immediate drainage -	847.4	0.05
Total	41,652.8	7.17

2. Outlet - A-1 Humboldt River 41,699.0 5.80

C. Precipitation:

1. Year of sampling: 20.1 cm.
2. Mean annual: 18.2 cm.

III. LAKE WATER QUALITY SUMMARY

Rye Patch Reservoir was sampled three times during the open-water season of 1975 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from nine stations (Stations 02, 06, 07 and 09 were sampled twice and Stations 11, 12 and 13 were sampled only once) on the lake and from one or more depths at each station (see map, page v). During the last two visits, depth-integrated samples were collected from each station for chlorophyll a analysis and phytoplankton identification and enumeration. During the first and last visits, 18.9-liter depth-integrated samples were composited for algal assays. Maximum depths (expressed in meters) sampled are listed below:

Station Number	Maximum Depth
01	7.9
02	4.9
06	15.5
07	3.0
09	1.5
10	6.4
11	3.4
12	Surface
13	9.4

For a more detailed explanation of NES methods, see NES Working Paper No. 175.

The results obtained are presented in full in Appendix C and are summarized in III-A for waters at the surface and at the maximum depth for each site. Results of the phytoplankton counts and chlorophyll a determinations are included in III-B. Results of the limiting nutrient study are presented in III-C.

...E PATCH RESERVOIR
STORET CODE 3206

PHYSICAL AND CHEMICAL CHARACTERISTICS

PARAMETER	N*	(6/ 2/75) S*** = 3 RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	N*	(7/11/75) S*** = 5 RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	N*	(11/ 7/75) S*** = 9 RANGE	MEDIAN	MAX DEPTH RANGE (METERS)
TEMPERATURE (DEG CENT)												
0.-1.5 M DEPTH	6	15.0- 24.0	18.8	0.0- 1.5	7	20.8- 23.5	22.5	0.0- 1.5	17	6.4- 8.7	7.0	0.0- 1.5
MAX DEPTH**	3	13.5- 15.5	13.5	4.9- 7.6	5	14.5- 23.5	19.7	0.0- 15.5	9	6.5- 8.7	7.0	0.0- 14.6
DISSOLVED OXYGEN (MG/L)												
0.-1.5 M DEPTH	3	7.8- 9.8	8.3	0.0- 0.9	7	5.0- 7.2	6.6	0.0- 1.5	16	8.8- 10.0	9.4	0.0- 1.5
MAX DEPTH**	2	9.2- 9.8	9.5	4.9- 7.6	5	5.2- 7.6	6.4	0.0- 15.5	9	8.6- 10.0	9.4	0.0- 14.6
CONDUCTIVITY (UMHOS)												
0.-1.5 M DEPTH	6	500.- 748.	570.	0.0- 1.5	7	770.-1348.	895.	0.0- 1.5	17	708.-2069.	737.	0.0- 1.5
MAX DEPTH**	3	500.- 708.	540.	4.9- 7.6	5	819.-1348.	851.	0.0- 15.5	9	716.-2065.	743.	0.0- 14.6
PH (STANDARD UNITS)												
0.-1.5 M DEPTH	4	9.2- 9.6	9.5	0.0- 0.9	7	8.4- 8.8	8.6	0.0- 1.5	17	8.5- 8.6	8.6	0.0- 1.5
MAX DEPTH**	2	8.4- 9.0	8.7	4.9- 7.6	5	8.4- 8.8	8.7	0.0- 15.5	9	8.5- 8.6	8.6	0.0- 14.6
TOTAL ALKALINITY (MG/L)												
0.-1.5 M DEPTH	6	244.- 292.	270.	0.0- 1.5	7	425.- 500.	465.	0.0- 1.5	17	308.- 382.	344.	0.0- 1.5
MAX DEPTH**	3	44.- 282.	262.	4.9- 7.6	5	425.- 495.	475.	0.0- 15.5	9	308.- 386.	334.	0.0- 14.6
TOTAL P (MG/L)												
0.-1.5 M DEPTH	6	0.095-0.157	0.128	0.0- 1.5	7	0.083-0.142	0.114	0.0- 1.5	17	0.063-0.104	0.069	0.0- 1.5
MAX DEPTH**	3	0.031-0.233	0.124	4.9- 7.6	5	0.083-0.144	0.114	0.0- 15.5	9	0.062-0.119	0.084	0.0- 14.6
DISSOLVED ORTHO P (MG/L)												
0.-1.5 M DEPTH	6	0.070-0.088	0.081	0.0- 1.5	7	0.046-0.096	0.067	0.0- 1.5	17	0.019-0.040	0.035	0.0- 1.5
MAX DEPTH**	3	0.006-0.083	0.076	4.9- 7.6	5	0.060-0.081	0.067	0.0- 15.5	9	0.019-0.039	0.035	0.0- 14.6
NO2+NO3 (MG/L)												
0.-1.5 M DEPTH	6	0.100-0.130	0.100	0.0- 1.5	7	0.020-0.080	0.040	0.0- 1.5	17	0.020-0.040	0.020	0.0- 1.5
MAX DEPTH**	3	0.040-0.100	0.090	4.9- 7.6	5	0.020-0.060	0.040	0.0- 15.5	9	0.020-0.030	0.020	0.0- 14.6
AMMONIA (MG/L)												
0.-1.5 M DEPTH	6	0.040-0.120	0.050	0.0- 1.5	7	0.020-0.090	0.060	0.0- 1.5	16	0.020-0.020	0.020	0.0- 1.5
MAX DEPTH**	3	0.040-0.060	0.060	4.9- 7.6	5	0.020-0.080	0.040	0.0- 15.5	9	0.020-0.020	0.020	0.0- 14.6
KJELDAHL N (MG/L)												
0.-1.5 M DEPTH	6	0.500-1.000	0.700	0.0- 1.5	7	0.700-1.500	1.000	0.0- 1.5	17	0.400-0.600	0.500	0.0- 1.5
MAX DEPTH**	3	0.500-0.600	0.500	4.9- 7.6	5	0.700-1.000	0.800	0.0- 15.5	9	0.400-0.600	0.500	0.0- 14.6
SECCHI DISC (METERS)												
	3	1.3- 1.1	1.1		5	0.2- 1.5	0.8		0	***** *****	*****	

* N = NO. OF SAMPLES
** MAXIMUM DEPTH SAMPLED AT EACH SITE
*** S = NO. OF SITES SAMPLED ON THIS DATE

B. Biological Characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units Per ml
06/01/75	1. Centric diatom	30
	Other genera	---
	Total	30
07/11/75	1. Cryptomonas	34
	2. Nitzschia	34
	Other genera	---
	Total	68
11/07/75	1. Chroomonas?	889
	2. Schroederia	727
	3. Chlamydomonas	566
	4. Oocystis	242
	5. Pandorina	162
	Other genera	162
	Total	2,748

2. Chlorophyll *a* -

Sampling Date	Station Number	Chlorophyll *a* (µg/l)
07/11/75	01	1.7
	02	---
	06	---
	07	2.2
	09	1.8
	10	1.5
	11	---
	12	---
	13	---
11/07/75	01	3.3
	02	3.9
	06	2.0
	07	8.0
	09	5.7
	10	5.3
	11	5.1
	12	20.6
	13	3.1

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum Yield (mg/l-dry wt.)
a. 06/02/75			
Control	0.100	0.090	6.2
0.05 P	0.150	0.090	5.6
0.05 P + 1.0 N	0.150	1.090	29.8
1.00 N	0.100	1.090	20.0
b. 11/07/75	Stations 01, 06, 13		
Control	0.040	0.055	2.0
0.05 P	0.090	0.055	5.3
0.05 P + 1.0 N	0.090	1.055	14.7
1.00 N	0.040	1.055	1.2
	Stations 02, 10, 11		
Control	0.025	0.070	0.5
0.05 P	0.075	0.070	4.4
0.05 P + 1.0 N	0.075	1.070	3.3
1.00 N	0.025	1.070	0.3
	Stations 07, 09, 12		
Control	0.040	0.095	0.5
0.05 P	0.090	0.095	0.9
0.05 P + 1.0 N	0.090	1.095	0.9
1.00 N	0.040	1.095	0.3

2. Discussion -

The control yields of the assay alga, Selenastrum capricornutum*, indicate that the potential for primary productivity in Rye Patch Reservoir was high during the June sampling (06/02/75) and at the Stations 01, 06, and 13 assay during the November sampling (11/07/75), but moderate at the Stations 02, 07 and 09-12 assays on the latter date. In the June assay, the addition of nitrogen alone and in combination with phosphorus produced a significant increase in yield over that of the control, indicating nitrogen limitation. The addition of only phosphorus did not increase growth beyond control yields in this assay. In all the November assays, the addition of phosphorus alone and in combination with nitrogen resulted in a significant increase in yield over that of the control, indicating phosphorus limitation at this time.

The mean inorganic nitrogen to orthophosphorus (N/P) ratios in the reservoir data were 2/1 or less on all three sampling occasions suggesting primary limitation by nitrogen (a mean N/P ratio of 14/1 or greater generally reflects phosphorus limitation).

*For further information regarding the algal assay test procedure and selection of test organisms, see U.S. EPA (1971).

IV. NUTRIENT LOADINGS
(See Appendix D for data)

For the determination of nutrient loadings, the Nevada National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page v), except for the high runoff months of April, May and June when two samples were collected. Sampling was begun in November 1974, and was completed in October 1975.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Nevada District Office of the USGS for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a USGS computer program for calculating stream loadings. Nutrient loads indicated for tributaries are those measured minus known point source loads, if any.

Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of USGS) were estimated by using the mean annual concentrations in the Humboldt River and Pitt-Taylor Diversion Canal at Stations A-2 and C-1 and mean annual ZZ flow.

A. Waste Sources:

1. Known municipal - None

2. Known industrial - None

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (nonpoint load) -		
A-2 Humboldt River	50,350	92.4
C-1 Pitt-Taylor Diversion (Canal)	2,645	4.8
b. Minor tributaries and immediate drainage (nonpoint load) -	695	1.3
c. Known municipal STP's - None		
d. Septic tanks - None known		
e. Known industrial - None		
f. Direct precipitation* -	805	1.5
Total	54,495	100.0%

2. Outputs - A-1 Humboldt River 27,770

3. Net annual P accumulation - 26,725

*Estimated (See NES Working Paper No. 175).

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/yr	% of total
a. Tributaries (nonpoint load) -		
A-2 Humboldt River	229,175	78.6
C-1 Pitt-Taylor Diversion (Canal)	10,425	3.6
b. Minor tributaries and immediate drainage (nonpoint load) -	2,170	0.7
c. Known municipal STP's - None		
d. Septic tanks - None known		
e. Known industrial - None		
f. Direct precipitation* -	49,815	17.1
Total	291,585	100.0%

2. Outputs - A-1 Humboldt River 201,970

3. Net annual N accumulation - 89,615

*Estimated (See NES Working Paper No. 175).

D. Mean Nutrient Concentrations in Ungaged Streams:

Tributary	Mean Total P (mg/l)	Mean Total N (mg/l)
B-1 Pitt-Taylor Reservoir	0.203	1.360

E. Yearly Loadings:

In the following table, the existing phosphorus annual loading is compared to the relationship proposed by Vollenweider (1975). Essentially, his "eutrophic" loading is that at which the receiving waters would become eutrophic or remain eutrophic; his "oligotrophic" loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A "mesotrophic" loading would be considered one between "eutrophic" and "oligotrophic".

Note that Vollenweider's model may not apply to lakes with short hydraulic retention times or in which light penetration is severely restricted by high concentrations of suspended solids in the surface waters.

	Total Yearly Phosphorus Loading ($g/m^2/yr$)
Estimated loading for Rye Patch Reservoir	1.18
Vollenweider's "eutrophic" loading	0.40
Vollenweider's "oligotrophic" loading	0.20

V. LITERATURE REVIEWED

Nevada Environmental Protection Services. 1976. Water Quality Management Plan, Humboldt River Basin. Department of Human Resources, Carson City, Nevada.

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VI. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR NEVADA 1/21/77

LAKE CODE 3204 RYE PATCH RESERVOIR

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 41699.0

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ME
3204A1	41699.0	0.59	1.30	4.22	10.25	15.80	11.64	12.88	6.17	4.02	0.62	0.57	1.19	5.
3204A2	40663.0	2.83	5.01	8.04	11.84	14.95	15.55	12.40	2.94	1.19	0.96	1.42	2.12	6.
3204B1	40805.4	0.011	0.059	0.178	0.093	0.096	0.170	0.085	0.011	0.0	0.0	0.011	0.0	0.0
3204C1	40663.0	0.481	0.736	0.793	0.708	0.680	0.765	0.481	0.142	0.085	0.085	0.198	0.255	0.4
3204Z7	893.5	0.170	0.057	0.255	0.057	0.014	0.028	0.0	0.0	0.0	0.0	0.0	0.028	0.0

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 41699.0
SUM OF SUB-DRAINAGE AREAS = 123024.8

TOTAL FLOW IN = 85.99
TOTAL FLOW OUT = 69.26

NOTE: A2 AND C1 ARE CANALS. THEIR DRAINAGE AREA IS THAT OF THE HUMBOLDT RIVER.

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
3204A1	11	74	0.651	17	0.680				
	12	74	0.481	17	0.453				
	1	75	0.396	16	0.396				
	2	75	0.453	18	0.453				
	3	75	1.586	22	1.444				
	4	75	13.281	15	15.489	30	18.548		
	5	75	23.673	17	23.758	29	32.848		
	6	75	41.909	11	47.855	12	47.855		
	7	75	37.661	15	40.210				
	8	75	13.082	13	11.582				
	9	75	9.033	19	7.957				
	10	75	7.136	22	8.212				
3204A2	11	74	0.906	17	0.963				
	12	74	1.388	17	1.472				
	1	75	1.812	16	1.869				
	2	75	3.115	18	6.230				
	3	75	11.327	22	14.725				
	4	75	15.659	15	13.451	30	19.171		
	5	75	30.865	17	29.166	29	52.669		
	6	75	58.050	11	51.253	12	48.988		
	7	75	31.149	15	29.733				
	8	75	9.911	13	9.628				
	9	75	3.398	19	3.398				
	10	75	2.322	22	2.067				

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TRIBUTARY FLOW INFORMATION FOR NEVADA 1/21/77

LAKE CODE 3204 RYE PATCH RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
3204B1	11	74	0.0	17	0.0				
	12	74	0.0	17	0.0				
	1	75	0.0	16	0.0				
	2	75	0.0	18	0.0				
	3	75	0.0	22	0.0				
	4	75	0.0	15	0.0	30	0.0		
	5	75	0.0	17	0.0	29	0.0		
	6	75	0.0	11	0.0	12	0.0		
	7	75	1.614	15	1.416				
	8	75	1.133	13	1.133				
	9	75	0.0	19	0.0				
	10	75	0.0	22	0.0				
3204C1	11	74	0.0	17	0.0				
	12	74	0.108	17	0.340				
	1	75	0.623	16	0.595				
	2	75	1.416	18	1.529				
	3	75	2.803	22	2.860				
	4	75	4.446	15	4.304	30	4.814		
	5	75	5.182	17	4.644	29	4.474		
	6	75	3.908	11	3.964	12	3.964		
	7	75	2.662	15	2.492				
	8	75	1.303	13	1.246				
	9	75	0.651	19	0.425				
	10	75	0.085	22	0.057				

APPENDIX C

PHYSICAL AND CHEMICAL DATA

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320401
40 35 20.0 118 18 48.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 751216 04001002
0026 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/06/02	13 30	0000	24.0		10	520	9.60	246	0.050	0.800	0.110	0.083
	13 30	0003	19.0	8.3		500	9.60	276	0.040	0.600	0.100	0.088
	13 30	0010	17.5	9.8		480	9.60	256	0.050	0.500	0.100	0.082
	13 30	0016	15.5	11.3		480	9.40	278	0.060	0.400	0.100	0.077
	13 30	0025	13.5	9.2		500	8.40	282	0.060	0.500	0.100	0.078
75/07/11	15 00	0000	22.3	6.8	24	895	8.60	485	0.060	1.000	0.050	0.072
	15 00	0005	21.5	7.2		869	8.60	465	0.070	0.800	0.040	0.067
	15 00	0015	20.7	8.4		919	8.50	500	0.060	0.700	0.090	0.106
	15 00	0026	15.9	6.2		851	8.70	475	0.050	0.800	0.040	0.067
75/11/07	14 10	0000	7.8	9.2		708	8.65	344	0.020K	0.400	0.020K	0.033
	14 10	0005	7.7	9.4		737	8.65	374	0.020K	0.400	0.020K	0.032
	14 10	0015	7.7	9.4		713	8.60	378	0.020K	0.400	0.020K	0.034
	14 10	0020	7.7	9.2		716	8.60	334	0.020K	0.500	0.020K	0.032

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/06/02	13 30	0000	0.157		
	13 30	0003	0.137		
	13 30	0010	0.118		
	13 30	0016	0.122		
	13 30	0025	0.233		
75/07/11	15 00	0000	0.112	1.7	
	15 00	0005	0.116		
	15 00	0015	0.154		
	15 00	0026	0.112		
75/11/07	14 10	0000	0.066	3.3	
	14 10	0005	0.065		
	14 10	0015	0.078		
	14 10	0020	0.065		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320402
40 36 17.0 118 18 17.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 751216 04001002
0016 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/06/02	14	30 0000	22.0	6.8	43	560	9.20	282	0.050	0.800	0.090	0.079
	14	30 0003	15.0	9.8		580	9.40	258	0.050	0.500	0.090	0.079
	14	30 0010	14.6	10.6		560	9.20	248	0.050	0.500	0.100	0.081
	14	30 0016	13.5	9.8		540	9.00	262	0.060	0.500	0.090	0.083
75/11/07	11	10 0000	7.8	9.4		827	8.65	342	0.020K	0.600	0.020K	0.030
	11	10 0005	7.7	9.4		731	8.65	382	0.020K	0.600	0.020K	0.029
	11	10 0010	7.7	9.4		743	8.65	322	0.020K	0.500	0.020K	0.029

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/06/02	14	30 0000	0.137		
	14	30 0003	0.120		
	14	30 0010	0.117		
	14	30 0016	0.124		
75/11/07	11	10 0000	0.069	3.9	
	11	10 0005	0.067		
	11	10 0010	0.062		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320406
40 28 17.0 118 18 03.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 751216 04001002
0055 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/07/11	15 15	0000	22.5	7.2	30	1008	8.70	465	0.060	1.400	0.030	0.096
	15 15	0051	14.5	7.6		842	8.70	495	0.040	1.000	0.040	0.081
75/11/07	14 45	0000	8.7			734	8.60	340	0.020K	0.600	0.020	0.035
	14 45	0005	8.7	8.8		728	8.60	374	0.020K	0.500	0.040	0.036
	14 45	0015	8.7	8.8		739	8.60	366	0.020K	0.500	0.030	0.036
	14 45	0030	8.7	8.6		716	8.60	370	0.020	0.600	0.030	0.037
	14 45	0048	8.7	8.6		727	8.60	360	0.020K	0.500	0.030	0.035

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/07/11	15 15	0000	0.140		
	15 15	0051	0.139		
75/11/07	14 45	0000	0.063	2.0	
	14 45	0005	0.069		
	14 45	0015	0.062		
	14 45	0030	0.068		
	14 45	0048	0.066		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320407
40 41 09.0 118 18 06.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 751216 04001002
0014 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/07/11	14	20 0000	22.6	5.4	9	784	8.50	445	0.090	1.500	0.060	0.046
	14	20 0005	20.8	5.0		770	8.40	500	0.070	0.800	0.080	0.048
	14	20 0010	19.7	5.2		819	8.40	485	0.080	0.800	0.060	0.060
75/11/07	10	15 0000	6.8	9.6		720	8.60	348	0.020K	0.400	0.020K	0.033
	10	15 0005	6.8	9.4		731	8.60	366	0.020K	0.400	0.020K	0.040
	10	15 0010	6.7	9.4		743	8.60	342	0.020K	0.400	0.020K	0.039

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT RFMNING PERCENT
75/07/11	14	20 0000	0.142	2.2	
	14	20 0005	0.108		
	14	20 0010	0.144		
75/11/07	10	15 0000	0.097	8.0	
	10	15 0005	0.104		
	10	15 0010	0.119		

K VALUE KNOWN TO BE LESS THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320409
40 39 03.0 118 16 36.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 751216 04001002
0015 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/07/11	14 40	0000	22.5	6.4	58	1087	8.60	425	0.040	1.000	0.030	0.076
75/11/07	10 30	0000	6.5	9.8		1414	8.60	354	0.020K	0.500	0.020K	0.035
	10 30	0005	6.5	9.6		1425	8.60	316	0.020K	0.600	0.020K	0.036

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT RFMNING PERCENT
75/07/11	14 40	0000	0.114	1.8	
75/11/07	10 30	0000	0.103	5.7	
	10 30	0005	0.094		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320410
40 37 02.0 118 16 44.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 751216 04001002
0025 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/06/05	13	0000	18.5		42	748		264	0.120	1.000	0.130	0.084
	13	0005	16.6			723		292	0.070	0.600	0.100	0.070
	13	0021	15.5			708		44	0.040	0.600	0.040	0.006
75/07/11	14	0000	23.5	6.8	42	1348	8.80	440	0.020	0.700	0.020K	0.060
75/11/07	10	0000	6.4	9.8		2069	8.60	314	0.020K	0.600	0.020K	0.019
	10	0005	6.5	10.0		2065	8.65	308	0.020K	0.600	0.020K	0.019

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/06/05	13	0000	0.112		
	13	0005	0.095		
	13	0021	0.031		
75/07/11	14	0000	0.083	1.5	
75/11/07	10	0000	0.071	5.3	
	10	0005	0.092		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320411
40 38 57.0 118 20 23.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 760114 04001002
0015 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/11/07	10 35	0000	7.0	9.4		760	8.60	368	0.020K	0.400	0.020K	0.036
	10 35	0005	7.0	9.6		769	8.65	334		0.400	0.020K	0.037
	10 35	0011	7.0	9.6		783	8.60	386	0.020K	0.600	0.020K	0.039

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/11/07	10 35	0000	0.064	5.1	
	10 35	0005	0.087		
	10 35	0011	0.084		

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320412
40 40 50.0 118 14 42.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 760114 04001002
0005 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/11/07	10 00	0000	6.7	9.0		737	8.55	334	0.020K	0.400	0.020K	0.034

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32211 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/11/07	10 00	0000	0.066	20.6	

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 77/01/26
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

320413
40 32 28.0 118 18 20.0 3
RYE PATCH RESERVOIR
32027 NEVADA

/TYPA/AMBNT/LAKE

11EPALES 760115 04001002
0035 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/11/07	14 30	0000	8.3	9.4		721	8.60	364	0.020K	0.600	0.020	0.040
	14 30	0005	8.3	8.8		722	8.60	344	0.020K	0.500	0.020	0.035
	14 30	0015	8.3	8.8		722	8.60	350	0.020K	0.500	0.020	0.033
	14 30	0031	8.1	9.0		725	8.60	364	0.020K	0.500	0.030	0.036

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT RFMNING PERCENT
75/11/07	14 30	0000	0.084	3.1	
	14 30	0005	0.066		
	14 30	0015	0.063		
	14 30	0031	0.093		

K VALUE KNOWN TO BE LESS
THAN INDICATED

APPENDIX D

TRIBUTARY AND WASTEWATER TREATMENT PLANT DATA

[illegible] RETRIEVAL DATE 77/01/22
[illegible] EUTROPHICATION SURVEY
[illegible] DAS [illegible]

[illegible]

320441
40 28 10.0 118 18 30.0 4
HUMBOLDT RIVER
32 15 OREANA
O/RYE PATCH RESERVOIR 150291
BELO RYE PATCH DAM 1.2 M W JCT W US 40
11EPALES 04001004
0000 FEET DEPTH CLASS 00

DATE	TIME	DEPTH	00630 NO2&NO3 N-TOTAL	00625 TOT KJEL N	00610 NH3-N TOTAL	00671 PHOS-DIS ORTHO	00665 PHOS-TOT
[illegible]	[illegible]	FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
[illegible]	[illegible]		0.040	0.400	[illegible]	0.035	0.040
[illegible]	[illegible]		0.272	1.000	0.055	0.040	0.060
[illegible]	[illegible]		0.083	1.600	0.040	0.040	0.060
[illegible]	[illegible]		0.070	0.500	0.030	0.040	0.070
[illegible]	[illegible]		0.030	0.450	0.015	0.035	0.085
[illegible]	[illegible]		0.025	1.800	0.010	0.030	0.090
[illegible]	[illegible]		0.005	0.700	0.030	0.085	0.340
[illegible]	[illegible]		0.040	0.350	0.010	0.070	0.080
[illegible]	[illegible]		0.045	0.650	0.035	0.100	0.120
[illegible]	[illegible]		0.025	1.150	0.010	0.060	0.280
[illegible]	[illegible]		2.500	1.050	0.025	0.250	0.260
[illegible]	[illegible]		0.020	1.250	0.035	0.065	0.310
75/08/13	18 00		0.010	0.900	0.015	0.090	0.340
75/09/19	13 30		0.005	1.100	0.030	0.035	0.100
75/10/22	12 30		0.005	0.700		0.025	0.100

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STORET RETRIEVAL DATE 77/01/22
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

320442
40 41 30.0 118 12 15.0 4
HUMBOLDT RIVER
32 15 IMLAY
T/RYE PATCH RESERVOIR 1502S2
BNK SAMP END OF DRT RD 4 MI NW OF IMLAY
11EPALES 04001004
0000 FEET DEPTH CLASS 00

/ STREAM/AMBNT/STREAM

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/11/17	12 00		0.003	1.300	0.015	0.100	0.120
74/12/17	12 15		0.003	0.800	0.025	0.040	0.090
75/01/16	12 30		0.064	0.575	0.016	0.062	0.107
75/02/18	12 20		0.330	3.400	0.070	0.210	2.200
75/03/22	11 30		0.130	1.800	0.070	0.135	0.720
75/04/15	16 00		0.040	1.200	0.030	0.105	0.070
75/04/30	16 30		0.005	0.750	0.017	0.085	0.350
75/05/17	10 30		0.013	1.100	0.027	0.095	0.430
75/05/29	14 15		0.020	1.300	0.035	0.210	0.420
75/06/11	12 05		0.195	1.150	0.190	0.065	0.280
75/06/12	18 30		0.015	2.100	0.280	0.170	0.310
75/07/15	16 45		0.015	1.250	0.025	0.065	0.300
75/08/13	17 30		0.005	1.850	0.032	0.090	0.375
75/09/19	14 20		0.005	0.800	0.015	0.035	0.110
75/10/22	13 00		0.005	0.600	0.010	0.025	0.080

[illegible] DATE 77/01/22
[illegible] SURVEY

[illegible]

3204M1
40 36 15.0 118 17 50.0 4
PITT TAYLOR RESERVOIR
32 7.5 RY PTCH RS S
T/RYF PATCH RESERVOIR 160291
BELO PITT TAYLOR DAM 3 MI E OF HUMBOLT
11EPALES 04001004
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/11/17	[illegible]		0.009	[illegible]	0.020	0.020	0.200
74/12/17	[illegible]		0.024	1.100	[illegible]	0.030	0.080
75/01/15	13 40		0.024	1.100	[illegible]	0.020	0.105
75/02/18	11 30		0.005	0.750	0.020	0.030	0.110
75/03/22	12 00		0.015	1.050	[illegible]	0.020	0.240
75/04/15	13 [illegible]		0.005	1.850	1.025	0.065	0.090
75/04/30	15 [illegible]		0.005	0.750	0.015	0.085	0.350
75/05/17	04 [illegible]		0.430	1.400	0.015	0.105	
75/05/28	14 [illegible]		0.015	[illegible]	0.015	0.080	0.190
75/06/11	09 30		0.030	1.750	[illegible]	0.065	0.280
75/06/12	14 [illegible]			0.700	[illegible]	0.240	0.300
75/07/15	15 [illegible]		0.015	1.300	0.020	0.065	0.310
75/08/13	18 30		0.010	1.300	0.030	0.045	0.340
75/09/19	13 00		0.005	1.600	0.120	0.040	0.110
75/10/22	12 00		0.005	0.600	0.005	0.025	0.090

34

STORET RET[illegible] DATE 77/01/22
[illegible] HORIZONTAL SURVEY
FED- AM [illegible]

[illegible]

3204C1
40 40 05.0 11[illegible] 11 55.[illegible]
PITT TAYLOR DIV CANAL
32 15 IMLAY
[illegible]YE PATCH RESERVOIR 150292
SEC RD BRDG 3 MI NW OF IMLAY
11EPALES 04001004
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/12/17	14 00		0.004	0.500	0.010	0.035	0.120
75/01/16	13 45		0.072	0.700	0.016	0.065	0.150
75/02/18	13 45		0.345	4.300	0.075	0.240	2.000
75/03/22	11 40		0.135	1.300	0.020	0.135	0.690
75/04/15	15 30		0.090	1.450	0.010	0.105	
75/04/30	17 05		0.005	0.750	0.015	0.220	0.360
75/05/17	13 00		0.020	1.100	0.010	0.095	0.440
75/05/28	13 45		0.010	1.450	0.030	0.180	0.440
75/06/11	14 15		0.020	1.050	0.015	0.060	0.300
75/06/17	14 00		0.010	1.000	0.030	0.080	0.170
75/07/15	13 [illegible]2		0.270	0.950	0.010	0.075	0.320
75/08/13	17 00		0.005	1.000	0.020	0.090	0.350

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APPENDIX E

PARAMETRIC RANKINGS OF LAKES
SAMPLED BY NES IN 1975

STATE OF NEVADA

Mean or median values for six of the key parameters evaluated in establishing the trophic conditions of Nevada lakes sampled are presented to allow direct comparison of the ranking, by parameter, of each lake relative to the others. Median total phosphorus, median inorganic nitrogen and median dissolved orthophosphorus levels are expressed in mg/l. Chlorophyll a values are expressed in µg/l. To maintain consistent rank order with the preceding parameters, the mean Secchi disc depth, in inches, is subtracted from 500. Similarly, minimum dissolved oxygen values are subtracted from 15 to create table entries.

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
3201	LAKE MEAD	0.016	0.340	266.565	3.111	11.400	0.005
3202	LAHONTAN RESERVOIR	0.198	0.350	472.083	4.608	10.400	0.148
3204	RYE PATCH RESERVOIR	0.094	0.050	467.750	4.938	10.000	0.039
3205	LAKE TAHOE	0.005	0.040	-3.269	0.571	10.200	0.003
3206	TOPAZ RESERVOIR	0.057	0.165	376.000	7.517	14.600	0.041
3207	UPPER PAHRANGAT LAKE	0.173	0.125	470.000	---	3.600	0.026
3208	WASHOE LAKE	0.403	0.130	494.555	11.633	7.200	0.268
3209	WILD HORSE RESERVOIR	0.114	0.320	489.400	75.530	14.600	0.065
3210	WILSON RESERVOIR	0.049	0.120	197.333	10.033	11.400	0.016
3211	WALKER LAKE	0.602	0.080	405.333	3.422	15.000	0.574

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
3201	LAKE MEAD	89 (8)	11 (1)	78 (7)	88 (7)	39 (3)	89 (8)
3202	LAHONTAN RESERVOIR	22 (2)	0 (0)	22 (2)	63 (5)	56 (5)	22 (2)
3204	RYE PATCH RESERVOIR	56 (5)	89 (8)	44 (4)	50 (4)	78 (7)	56 (5)
3205	LAKE TAHOE	100 (9)	100 (9)	100 (9)	100 (8)	67 (6)	100 (9)
3206	TOPAZ RESERVOIR	67 (6)	33 (3)	67 (6)	38 (3)	17 (1)	44 (4)
3207	UPPER PAHRANAGAT LAKE	33 (3)	56 (5)	33 (3)	---	89 (8)	67 (6)
3208	WASHOE LAKE	11 (1)	44 (4)	0 (0)	13 (1)	100 (9)	11 (1)
3209	WILD HORSE RESERVOIR	44 (4)	22 (2)	11 (1)	0 (0)	17 (1)	33 (3)
3210	WILSON RESERVOIR	78 (7)	67 (6)	89 (8)	25 (2)	39 (3)	78 (7)
3211	WALKER LAKE	0 (0)	78 (7)	56 (5)	75 (6)	0 (0)	0 (0)